



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,110	10/14/2003	Winthrop D. Childers	200312768	6785

22879 7590 10/26/2007
HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

LIANG, REGINA

ART UNIT	PAPER NUMBER
----------	--------------

2629

MAIL DATE	DELIVERY MODE
-----------	---------------

10/26/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/686,110	Applicant(s) CHILDERS, WINTHROP D.	
	Examiner Regina Liang	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3, 5, 6, 8, 9, 15-20, 23-27, 40, 42, 44-47, 53 and 54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 5, 6, 8, 9, 15-20, 23-27, 40, 42, 44-47, 53, 54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/28/07 has been entered. Claims 1, 3, 5, 6, 8, 9, 15-20, 23-27, 40, 42, 44-47, 53, 54 are pending in the application.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Art Unit: 2629

3. Claims 1, 3, 5, 6, 8, 9, 15-20, 23-27, 40, 42, 44-47, 53, 54 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-74 of U.S. Patent No. 7,086,736 in view of Dewald et al (US 6,771,325, hereinafter Dewald).

The following is an example for comparing claim 1 of this applicant and claim 6 of P.N.

'736.

Claim 1 of this application	Claim 6 of P.N. '736
A display system for displaying an image, comprising: an image processing unit configured to process image data and generate a number of image sub-frames corresponding to said image data;	A display system for displaying an image comprising: an image processing unit configured to process image data defining the image and generate said image sub-frames;
a modulator configured to modulate a light beam according to said image sub-frames;	a modulator configured to produce a light beam that sequentially bears a plurality of color image sub-frame, wherein each color image sub-frame corresponds to one color in a plurality of colors; wherein said modulator is configured to modulate said color light beam according to said number of color image sub-frames to produce said light beam bearing said plurality of color image sub-frames;
a scrolling color device configured to scroll a plurality of colors across a face of said modulator, wherein all of said plurality of colors are present simultaneously on said face of said modulator , to produce a color light beam bearing said number of image sub-frames; wherein said scrolling color device scrolls said plurality of color across said face of said modulator an integer number of times during an image sub-frame time period corresponding to said each of said number of image sub-frames;	a sequential color device configured to shine a color light beam on a face of said modulator, said color light beam having a color that sequentially rotates through said plurality of colors, wherein plurality of color image sub-frames comprises a number of color image sub-frames equal to said number of image sub-frame locations multiplied by a number of colors in said plurality of colors;
display optics configured to display said image from said color light beam; and	display optics configured to display said light beam such that said plurality of color image sub-frames are successively displayed to form said image;
a wobbling device configured to displace said color light beam according to a cycle in which said image sub-frames are sequentially	a wobbling device configured to displace said light beam between display of each of said color image sub-frames such that a color image

displayed in a cycle of spatially offset positions, said spatially offset positions being offset by less than a pixel width from each other ;	sub-frame corresponding to each color in said plurality of colors is displayed in each of a number of image sub-frame locations; said number of image sub-frame location comprises: a first image sub-frame location; a second image sub-frame location; wherein said second image sub-frame location is spatially offset by an offset distance from said first image sub-frame location; wherein said offset distance comprises a vertical offset distance and a horizontal offset distance, said second image sub-frame location being vertically offset from said first image sub-frame location by said vertical offset distance and horizontally offset from said first image sub-frame location by said horizontal offset distance, said vertical offset distance is and said horizontal offset distance are substantially equal to one-half of a pixel.
further comprising a system timing unit configured to synchronize said scrolling color device and said wobbling device such that said scrolling color device scrolls said plurality of colors across said face of said modulator an integer number of times during an image sub-frame time period corresponding to each of said number of image sub-frames.	

As can be seen above, claim 1 of this application and claim 6 of P.N. '736 are claiming the similar subject matter. Claim 6 of P.N. '736 differs from claim 1 of this application in not having a system timing unit configured to synchronize the scrolling color device and the wobbling device. However, the patent claims are in comprising format and therefore covers structure not specifically recited. The patent disclosure clearly describes a system timing unit (154 in Fig. 4) configured to synchronize the scrolling color device (102) and the wobbling device (104) and are encompassed by the patent claims comprising format.

Claim 6 of U.S. P.N. '736 also differs from claim 1 of this application in that the color device is not configured to scroll the plurality of colors simultaneously across the spatial light modulator. However, Dewald teaches a sequential color display system (Fig. 2) having a scrolling color device (206, 208) configured to scroll a plurality of colors simultaneously across the spatial light modulator (210) during the generation of the light beam (e.g., see the abstract). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify claim 6 of P.N. '736 to have the scrolling color device as taught by Dewald so as to provide "an efficient illumination that is capable of providing the efficiency of a three-modulator display system while taking advantage of the simplified optics and low cost of a one-modulator display system" (col. 2, line 66 to col. 3, line 2 of Dewald).

4. Claims 1, 3, 5, 6, 8, 9, 15-20, 23-27, 40, 42, 44-47, 53, 54 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-31 of U.S. Patent No. 6,984,040 in view of Dewald.

The following is an example for comparing claim 1 of this applicant and claim 26 of P.N. '040.

Claim 1 of this application	Claim 26 of P.N. '040
A display system for displaying an image, comprising: an image processing unit configured to process image data and generate a number of image sub-frames corresponding to said image data;	A display system comprising: an image processing unit configured to generate at least two data arrays during a projected frame period, each display array defining a sub-frame image to be displayed during an image sub-frame time period;
a modulator configured to modulate a light beam according to said image sub-frames;	a light modulator configured to receive light from the periodic light generator and to generate a modulated light beam during each image sub-frame time period;
a scrolling color device configured to scroll a	a periodic color light generator having a

plurality of colors across a face of said modulator, wherein all of said plurality of colors are present simultaneously on said face of said modulator , to produce a color light beam bearing said number of image sub-frames; wherein said scrolling color device scrolls said plurality of color across said face of said modulator an integer number of times during an image sub-frame time period corresponding to said each of said number of image sub-frames;	varying color light period and configured to generate a sequence of primary color during each of at least two of the image sub-frame time periods;
display optics configured to display said image from said color light beam; and	
a wobbling device configured to displace said color light beam according to a cycle in which said image sub-frames are sequentially displayed in a cycle of spatially offset positions, said spatially offset positions being offset by less than a pixel width from each other ;	a wobbling device configured to receive the modulated light beam and provide relative displacement between the sub-frame images during the projected frame;
further comprising a system timing unit configured to synchronize said scrolling color device and said wobbling device such that said scrolling color device scrolls said plurality of colors across said face of said modulator an integer number of times during an image sub-frame time period corresponding to each of said number of image sub-frames.	a system timing unit configured to synchronize the wobbling device and to the varying color light period to allow the projected frame period to be an integer multiple of the varying color light period.

As can be seen above, claim 1 of this application and claim 26 of P. N. '040 are claiming the similar subject matter; claim 26 of P.N. '040 differs from claim 1 of this application in not having display optics, and the wobbling device not having the image sub-frame are sequentially displayed in a cycle of spatially offset positions, and the spatially offset positions being offset by less than a pixel width from each other. However, the patent claims are in comprising format and therefore covers structure not specifically recited. The patent disclosure clearly describes a display optics (12 in Fig. 8) and the image sub-frame are sequentially displayed in a cycle of

Art Unit: 2629

spatially offset positions, and the spatially offset positions being offset by less than a pixel width from each other (Figs. 9-11) and are encompassed by the patent claims comprising format.

Claim 26 of P.N. '040 also differs from claim 1 of this application in that the color device is not configured to scroll the plurality of colors simultaneously across the spatial light modulator. However, Dewald teaches a sequential color display system (Fig. 2) having a scrolling color device (206, 208) configured to scroll a plurality of colors simultaneously across the spatial light modulator (210) during the generation of the light beam (e.g., see the abstract). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify claim 26 of P.N. '040 to have the scrolling color device as taught by Dewald so as to provide "an efficient illumination that is capable of providing the efficiency of a three-modulator display system while taking advantage of the simplified optics and low cost of a one-modulator display system" (col. 2, line 66 to col. 3, line 2 of Dewald).

Response to Arguments


5. Applicant's arguments with respect to claims 1, 3, 5, 6, 8, 9, 15-20, 23-27, 40, 42, 44-47, 53, 54 have been considered but are moot in view of the new ground(s) of rejection.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (571) 272-7693. The examiner can normally be reached on Monday-Friday from 8AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (571) 272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2629

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Regina Liang
Primary Examiner
Art Unit 2674

10/24/07